REMARKS

This is a timely reply to the Final Office Action of November 15, 2002. In that Final Office Action, the Examiner allows Claims 7 – 22 and 31 – 43. The Examiner also indicates that Claims 4, 5 and 24 – 30 are allowable, but objects to these claims since they depend upon rejected base claims. Finally, the Examiner rejects Claims 1 – 3, 6 and 23. The grounds for rejection of Claims 1 – 3, 6 and 23 are traversed below.

Claims Rejections - 35 U.S.C. § 102

In Section 3 of the Office Action, the Examiner rejects Claims 1 - 3, 6 and 23 under 35 U.S.C. 102(b) as being anticipated by Thaniyavarn (U.S. Patent 5,543,805). The Applicant thanks the Examiner for his detailed comments regarding the '805 reference in relation to the features recited in the rejected claims. However, the Applicant respectfully submits that Claims 1 – 3, 6 and 23 are patentable over the '805 reference.

Regarding Claim 1, the Examiner asserts that the '805 reference teaches at Fig. 3 and at col. 4, l. 36 to col. 5, l. 24, "an optical system comprising the following: a laser source (Fig. 3) generating an optical input . . . ." The laser source cited by the Examiner comprises "a pair of single-frequency lasers." Col. 3, l. 37. The '805 reference further refers to the lasers as being capable of generating "over 100 mW of CW output power." Col. 3, ll. 42 – 43 (emphasis added). Hence, one skilled in the art would understand the '805 reference as teaching a laser source that provides a Continuous Wave (CW) output, and not a pulsed output.

However, Claim 1 of the present application recites, in part, "an optical pulse source generating an input optical pulse stream." The Applicants submit that the laser source cited by the Examiner does not teach, disclose, or suggest "an optical pulse source" as recited in Claim 1, since, as discussed above, the cited laser source produces a CW output. In fact, a word search of the '805 reference as provided at the USPTO web site reveals that there is apparently no use of the word "pulse" anywhere in the reference.

One skilled in the art would further understand that the '805 reference does not teach, disclose, or even suggest an optical pulse source as recited in Claim 1, since the use of such a pulse source would, most likely, render the apparatus disclosed in the '805 reference inoperative. The '805 reference teaches that an optical source with as narrow a bandwidth as possible is desirable. See col. 3, ll. 53 – 64. A narrow bandwidth allows the differential phase shift required by the '805 reference to be precisely detected. However, those skilled in the art understand that a pulsed optical beam has a broader bandwidth, due to the generation of multiple frequency lines due to the pulse modulation. Hence, the use of a broadband optical signal source would, most likely, prevent the generation and detection of a stable differential phase shift, which is required by the '805 apparatus.

Therefore, the Applicant submits that the Examiner has not shown that the '805 reference teaches each and every element as set forth in Claim 1, since the '805 reference does not teach "an optical pulse source" as recited in Claim 1. The Applicant respectfully requests that the Examiner withdraw the rejection of Claim 1 based on anticipation by the '805 reference.

Further, the Examiner asserts that the '805 reference teaches a controllable delay device by virtue of the incorporation by reference of the '878 reference. Specifically, the Examiner asserts that "the addition of the variable time-delay device coupled to the optical input source, as stated in column 6 lines 27 – 35, to the phased-array delay device of '805 discloses a controllable delay structure coupled to an optical source which produces a plurality of output streams, each stream having a controllable, relative delay." However, the Applicant submits that such a conclusion is not supported by the teachings of the '805 and '878 references.

As noted above, the '805 reference explicitly teaches an optical source that generates two continuous wave optical signals. Hence, the '805 reference does not teach a pulsed optical source. The two optical signals are used to generate a microwave beat signal equal to the difference in frequency between the two signals. Even if the delay structure of the '878 reference is used, the references teach that the delay structure would be disposed at the input waveguide 41 of the circuit 40. At best, then the delay structure would receive two continuous wave optical signals and produce two continuous wave optical signals with a selected delay.

There is no explicit teaching of the structure, as combined by the Examiner, producing "a plurality of output optical pulse streams" much less "each output optical pulse stream having a controllable time delay relative to the input optical pulse stream" as recited in Claim 1.

The Examiner concludes that since the controllable delay device disclosed in the '878 reference relates to a switching array," it inherently includes the utility to control the time-delay of a plurality of pulse streams." Therefore, the Examiner appears to admit that the references do not explicitly teach each and every element as set forth in Claim 1 and, instead, relies upon some asserted inherent teaching of the references. However, the Examiner is reminded, as stated in MPEP 2112, "in relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art" quoting *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). The Applicant submits that the Examiner has not provided a basis in fact and/or technical reasoning for the asserted conclusion.

Therefore, if the Examiner continues to conclude that the controllable delay device of the '878 reference "inherently includes the utility to control the time-delay of a plurality of pulse streams," the Applicant respectfully requests that the Examiner provide a reference that supports such a conclusion, as required by MPEP 2131.01. If the Examiner is unable to provide such a reference, the Applicant respectfully requests that the Examiner provide an affidavit in support of the assertion, as required by 37 C.F.R. 104(d)(2). 37 C.F.R. 104(d)(2) states, in part, that "when a rejection in an application is based on facts within the personal knowledge of an employee of the Office, the data shall be specific as possible, and the reference must be supported, when called for by the applicant, by the affidavit of such employee."

Based on the arguments presented above, the Applicant submits that the Examiner has not established a *prima facie* case of anticipation of Claim 1 based on the '805 reference. Therefore, the Applicant respectfully requests that the rejection of Claim 1 be withdrawn and the claim allowed.

Regarding Claim 2, the Examiner asserts that the device of the '805 reference "would inherently include an array of optical apertures related to each controlled output signal as in figure 3." However, Claim 2 recites, in part, "each optical aperture in the array receiving one output optical pulse stream from the plurality of output optical pulse streams." As discussed above, the Applicant submits that the '805 reference does not teach output optical pulse streams. Therefore, the Applicant submits that since the '805 reference does not teach each and every element as set forth in Claim 2, the rejection of Claim 2 should be withdrawn.

Regarding Claims 3 and 6, the Applicant submits that these claims are patentable over the '805 reference at least based upon their dependence upon allowable claims.

Regarding Claim 23, the Applicant submits that Claim 23 is patentable over the '805 reference at least for reasons similar to those set forth above for Claim 1. That is, the Applicant submits that the Examiner has not shown that the '805 reference teaches "providing an optical stream" and "the optical delay structure providing a plurality of delayed optical pulse streams" as set forth in Claim 23. The Applicant submits that the Examiner has not established a *prima facie* case of anticipation of Claim 23 based on the '805 reference. Therefore, the Applicant respectfully requests that the rejection of Claim 23 be withdrawn and the claim allowed.

Conclusion

For the reasons set forth above, the Applicant submits that Claims 1 – 3, 6 and 23 are allowable over the prior art that has been cited. The Applicant further notes that Claims 7 – 22 and 31 – 43 are allowed and Claims 4, 5 and 24 – 30 are allowable. In view of the above, reconsideration and allowance of all claims of the application are respectfully solicited.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136(a) requesting an extension of time of the number of months

necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

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February 11, 2003
(Date of Deposit)

Ross A. Schmitt
(Name of Person Transmitting)

Ross A. Schmitt
(Signature)

2-11-03
(Date)

Respectfully submitted,

Ross A. Schmitt
Attorney for Applicant
Reg. No. 42,529
LADAS & PARRY
5670 Wilshire Boulevard, Suite 2100
Los Angeles, California 90036
(323) 934-2300

LADAS & PARRY

FACSIMILE TRANSMITTAL

5670 Wilshire Boulevard, Suite 2100
Los Angeles, California 90036-5679
Telephone: (323) 934-2300
Facsimile: (323) 934-0202

DELIVER TO: Examiner Daniel J. Petkovsek Art Unit 2874

COMPANY: United States Patent and Trademark Office

FAX NUMBER: (703) 872-9319

FROM: Ross Schmitt

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SUBJECT : Response After Final
U.S. Application No. 09/877,976
David M. Pepper
"Electro-Optical Programmable True-Time Delay Generator"
Our ref: B-3918 617820-9

REMARKS:

Reply under 37 CFR 1.116
Expedited Procedure
Examining Group 2874

Examiner Petkovsek:

Enclosed is an Response After Final filed in response to the Final Office Action of November 15, 2002. If there is a problem with this response, please contact us at the phone number listed above. Thank you.

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